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ABSTRACT

Technology can best be applied in the preparation of teachers for the ghetto by evaluating current practices in teacher training and by using the results of this evaluation in applied and basic research. Some acute problems facing teacher education for ghetto schools include language barriers, cultural gaps, and teacher career patterns. (SP)

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Technology for Pre-service and In-service Training of Teachers of Ghetto Children

by Alonzo A. Crim*

Urban educators have waited for years for technology to produce instant solutions to the problems they face in educating poor urban children. Technology has produced abundant amounts of new soft and hard educational materials. Much of these materials, however, can now be found collecting dust in school storerooms and teachers' closets. Technology has not yet found the elixir for the ailments of public school education in the cities.

Educators who are not mesmerized by the success of technology in the production of goods and in space anticipated the early failures of technology in education. They know that educating America's youth is a complicated task. It is at least as difficult today to successfully educate children from low-income urban areas to fully utilize their talents as to put an astronaut on the moon. As technicians come to realize this they will become more successful in their explorations in the field of education.

Technicians and business leaders who are now being enlisted by government to "save" public education will find that it differs vastly from the worlds of business and industry. The basic difference is that it is every American's right to receive an education. However, Americans differ markedly on what kind of education that they have a right to receive. There is far more agreement in business and industry

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on the kinds of products that they are to produce. Public schools are expected to produce diverse kinds of education on a rather miserly budget. Fifty-one million public school students are educated at an average annual cost of $550.[1] There is absence of flexibility in the public school budget for future planning or investing in promising technology. Schools are required to be more concerned with the here and now or the past.

Instruction by teachers remains the major method of educating students. There are certain teacher activities that machines can do now and no doubt machines will do more of them in years to come. However, machine costs are higher currently. Patrick Suppes estimates the cost computerized system for drill and practice to be $4.50 per pupil hour compared to less than $.60 per pupil hour cost for teachers.[2] Cost of computer time will probably diminish in time, but it will hardly be reduced in the near future to the level of present costs of educating a student.

Technicians who are now conducting experiments in applying technology to education have come to know the magnitude of problems that teachers face in developing adequate

curricula for students. Suppes, in considering the problem, wrote:

> It is a straightforward matter to show that the number of problems of possible sequences of concepts and subject matter just in the elementary school is in excess of 10^{100}, which is larger than even generous estimates of the number of elementary particles in the universe.[3]

If it were only a matter of discovering the proper sequences of concepts and subject matter for ghetto schools, technology would in time be successful in identifying those things that teachers in ghetto schools should know. But it isn't that easy. Ghetto communities want much more from their schools and teachers.

People living in the ghetto feel that the public school should not only teach reading, writing and arithmetic, it should also be the springboard for social acceptance and employment. Thus, the public school has failed them even when it has been successful in teaching academic skills. For maximum utility, then, technology should be used in preparing teachers to eradicate this failure of long standing. It should not be used as it has in recent years to perpetuate unproductive programs. How effective have teacher in-service and pre-service programs been in preparing teachers for ghetto schools?

In-Service and Pre-Service Teacher Education

Teacher in-service education rests on the assumption that children's lives will not be changed very much unless the professional and personal lives of their teachers are made ever richer with fruitful experiences. To this point the National Commission on Teacher Education and Professional Standards has stated: "In-service growth is that growth which takes place after the teacher is on the job. It is a continuation of the professional development which was begun during the pre-service period of preparation. In-service education is a process inherent in any planned program designed to make the individual a more effective teacher. This type of education should be an integral part of any school program."[4]

School systems, however, do not agree on what constitutes professional growth. The Research Division of the National Education Association conducted a survey of activities accepted as fulfilling professional growth requirements in 1965. The results of that survey are shown in the following chart.[5]

Activities Accepted as Fulfilling Professional Growth Requirements in 307 Reporting School Systems 1965 - 1966

Professional Growth Activity	Strata by Enrollment			
	Total	25,000 or more	12,000-24.999	6,000-11,999
College courses for credit	100%	100%	100%	100%
Workshops or in-service training sponsored by school system	81.8	80.4	81.0	82.4
Travel	66.8	69.6	69.6	64.8
Non-credit courses or institutes not sponsored by school system	44.6	43.5	43.0	45.6
Research	34.9	45.7	34.2	32.4
Work on School Committees	32.9	37.0	32.9	31.9
Professional writings	29.0	39.1	22.8	29.1
Attendance at professional conferences or conventions	21.8	26.1	17.7	22.5
Supervision of student teacher	14.7	13.0	11.4	16.5
Holding office in professional association	13.7	15.2	10.1	14.8
Committee work in professional association	11.4	13.0	10.1	11.5
Community projects	9.4	17.4	7.6	8.2
Work experiences	3.9	8.7	3.8	2.7
Other	6.5	4.3	3.8	8.2
Number reporting	307	46	79	182

The chart shows that the 307 school systems with 6,000 or more pupils enrolled generally accepted just three types of professional growth activities: college courses for credit, school system programs and travel. It should be noted that two of the three activities are teacher initiated, albeit found acceptable and probably encouraged by school systems through inducements of salary advancements on the salary schedule.

The apparent assurance of school systems that teachers will become more effective teachers because of increments of higher education is unfounded. Research data has not found a significant relationship between teachers effectiveness and the teacher's grades in university courses.[6] These findings hold true even in the teacher's major subjects.[7] These findings, however, could mean that the university courses are irrelevant and that teachers could be helped to become more effective teachers if they were enrolled in meaningful courses.

School systems' strong support of teachers taking university courses no doubt stems from the recent past when teachers had limited education. In 1890, relatively few teachers had received a high school education. It was 1910 before any state was to make a high school graduation the minimum requirement for all teacher licenses.[8] Through the years, teachers have received increased education. In 1966, the percent of teachers lacking the bachelor degree had declined from 22.2 percent in 1951 to 7.0 percent in 1966.[9]

The evidence concerning the value of the other two professional growth activities accepted by the 307 school systems is just as lacking as with university courses. There is virtually no research literature on how teachers are improved through travel. There is an extensive literature of school systems in-service education programs, but the determination of the benefits of these programs is derived largely through the observations

of the authors.[10] Definitive research on how teachers improve through participation in in-service education is limited, if at all available.

Knowledge is equally obscure in the identification of the individual needs of teachers despite the large number of studies done on this topic. J. W. Getzels and P. W. Jackson, in reviewing over 800 teachers' characteristics and personality studies in 1950, write, "Despite the critical importance of the problem and a half-century of prodigious effort, very little is known for certain about the nature and measurement of teacher personality, or about the relation between teacher personality and teacher effectiveness."[11] The lack of knowledge about how to improve the teaching of teachers of minority children has become critical in recent years. A new emphasis has been placed upon the pre-service as well as the in-service training of teachers of minority children since the 1954 Brown v. Board of Education of Topeka Supreme Court decision. It was with this decision that it was officially recognized that minority children received an unequal education. Teachers discovered during the 1950's and continuing until the present that old teaching methods would not provide equal education. Malcolm Provus summarized the problem as follows:

> ...that the slum child is a child of another world. Our laws do not bind him, our standard middle-class ambitions do not inspire him, our

> IQ's do not measure him and most of all our teachers do not reach him. Rules learned in college clearly don't work in the slum schools, but some teachers cling to them for no one has taught them otherwise.[12]

If Provus is right, what rules should colleges teach prospective teachers? And if such rules do indeed exist, can they be taught to teachers?

Much of the research on disadvantagement in the past ten years has been primarily focused on children. The rationale was that if the children's needs could be identified that teachers could fulfill these needs. More recently researchers have given greater attention to the qualities that teachers must have to be successful in teaching ghetto children. Ability to bridge social class differences that often exist between students and teachers is thought by some researchers to be of the utmost importance. Kenneth Clark claims that social class of the teacher is a major factor in the poor achievement of lower-class children.

> The clash of cultures in the classroom is essentially a class war, a socio-economic and racial warfare being waged on the battleground of our schools, with middle-class teachers provided with a powerful arsenal of half-truths, prejudices and rationalizations arrayed against hopelessly out-classed working class youngsters. This is an uneven balance, particularly since, like most battles, it comes under the guise of righteousness.[13]

A number of studies on the background of teachers have concluded that teachers are middle-class or have a middle-class orientation, although researchers differ on community origins of teachers.[1]

Thus there is no sure way of testing Clark's beliefs until there are groups of teachers identified to have working-class orientations who can be compared to groups of teachers of comparable skills with middle-class orientations.

This debate of social class difference, however, has affected the education of teachers. Teacher education programs for school personnel to work with children of the ghetto are heavily oriented toward the sociological and anthropological aspects of slum children. The rationale being that these kinds of studies will give prospective teachers the new understandings of the cultures of ghetto children, thereby making them more effective. It is a basic premise that new understandings of the culture of the particular group of children are necessary if the teacher is to bridge the gap from the home culture of his students to the school culture and the culture of the larger society.

Because the teacher of ghetto children, typically, does not share a common cultural background with his students, and because he has middle-class values which his students have not acquired, it is assumed that he may have attitudes which form a barrier to his acceptance of his students, a barrier to which they may react negatively. Many programs, then, are designed to change attitudes of the teacher toward the children of the ghetto. These aspects of the programs are difficult to evaluate. William Kvaraceus in Negro Self Concept states:

> One significant finding, however, which we can be somewhat sure about, is the fact that education

> has relatively little impact on attitudes and behavior. Coleman's study of adolescent society, Jacob's study of college education, and the research reported by Sanford indicate that most students enter schools, whether it be high school or college, and leave it without any visible change except that they are four years older.[15]

If this is true, the standard approach to classroom instruction cannot achieve desired change in attitude because the standard approach tends to reinforce the student's self-concept. Kvaraceus concludes:

> Therefore we would propose a new approach. We would suggest that the utilization of the idea of deliberate effort to change the self-concept of students (in educational courses) will appreciably affect their total education as well as their personal experiences.[16]

A number of teacher-training institutions have made a "deliberate effort" to interest their students in seeking teacher careers in slum areas. Some of these programs are reviewed by Edmund W. Gordon and Doxey A. Wilkerson in a research project by the College Entrance Examination Board and the National Scholarship Service and Fund for Negro Students.[17] The salient features of these programs seem to be increased contact with slum children and their communities. Almost all programs seek volunteers; therefore, there is no measure of how students' attitudes were changed toward ghetto children by the college courses they have taken.

Bank Street College was funded by the Office of Economic Opportunity in 1965 to evaluate the teacher education programs

for the disadvantaged at 122 colleges and universities. Seventy-seven institutions reported accomplishing this goal through courses--36 through student teacher experience in special service schools; 19 through field trips and school visitations in disadvantaged areas; 14 through special projects; 13 through workshops and conferences; 10 through tutorial programs; 6 through community services; 4 through special films and lectures; and 5 through other methods.

Reactions of the institution to how they evaluated the programs covered a wide range of responses from, "Most of our student teachers are placed in a middle-income community, but at times might be subjected to the kind of community you describe," to, "We believe all will be better teachers for understanding the teaching of children with vast differences in experiential background." A frequent assertion was that the new emphasis on teaching teachers to work with the disadvantaged had not raised the public image of this kind of teaching and not facilitated recruitment and placement of teachers in economically deprived areas.[18]

The responses from the 122 colleges and universities seem to confirm the previously drawn conclusion that college courses do not change the attitudes of prospective teachers toward ghetto children. The portents of this conclusion are: ghetto schools will continue to have difficulty in securing teachers; many of the teachers who are assigned to ghetto schools do not want to be

there; the rate of teacher transfers from ghetto schools will likely continue to be high; and, teacher morale problems may be more frequent and of greater consequence in ghetto schools.

Technology can best help education immediately in the area of evaluation. Evaluation and evaluative instruments in education are almost nil.[19] Officials of the U. S. Office of Education have identified those common errors in evaluation procedures used by school districts applying for Title I funds:

> Confusing ends with means
>
> Operating on assumptions that are not necessarily a reasonable basis for evaluation
>
> Equating correlation with causation

Since evaluation is extremely limited in education, it cannot be done in a piecemeal manner. It must be comprehensive. We cannot continue in education in building expressways along old cow paths simply because cows and men have always gone these same ways. We must know why we teach certain subjects and what methods bring about the greatest results.

To establish such comprehensive and interrelated educational research and evaluation, Richard Miller recommends that the U. S. Congress establish a network of 50 experimental schools across the nation patterned after the well-known and highly successful agricultural stations.[20]

Miller suggests that these schools be established in all geographic areas and would specialize in various educational

problem areas. All schools would be linked by telephone and closed-circuit television. In essence, the schools would be a systems approach to the problems of education. Not only would it allow the type of interrelated research and development management systems that are essential next steps in our era of energetic innovation, but it would allow educational problems to be studied vertically over a 12- or 14-year period. Different patterns of teacher education could be examined and evaluated in such a program.

The problem of teacher education, however, cannot wait for such onslaught. We must determine what we can do well now. We should identify some of the good proposals that have been submitted to the U. S. Office of Education and experiment with them on a limited basis. Increasingly, researchers in disciplines other than education are being persuaded to lend their talents to the problems of education. This trend must be encouraged through adequate funding for basic research.

A system of incentives must be devised to induce teacher training institutions and school systems to try methods that have shown promise in experimental situations. Federal funding has given impetus for experimentation in recent years. Perhaps some funds should be diverted to encouraging the use of pilot programs.

Helpful Applications of Technology in Teacher Education

Technology has had a tremendous impact on Americans. In tandem with massive commercial advertising, technology has through regular improvement created a mystique of infallibility for the average person. It is often forgotten by Americans that technology builds upon present knowledge and practices. Its power comes from its ability to systematize what is known, divide the whole task into smaller units of work, and make the smaller units more efficient and productive.

In education, technology has had, thus far, little success. It has built on old practices which in many cases were not meeting today's demands of education. Education has been slow in changing. Greater efficiency brought about by technology in education will not necessarily result in greater quality. Thus, films, radios, recordings and television play little more than token roles in instruction.

If technology is to play a significant role in instruction, it will have to be applied with imagination to problems identified by the people who run the schools. Otherwise, the new devices that are developed will have little hope of widespread adoption by schools. The current crises in urban schools and college campuses are more related to who will run the schools than what is taught. What is taught is so similar in schools that who runs the schools does seem to be a major variable in the quality of schools.

To identify how technology can improve the training of teachers for the ghettos, then, it is necessary to identify problems that teachers have in teaching ghetto children. The problems discussed in this paper are not comprehensive but are acute problems that have been identified by many students of education.

Language Barriers

Students in the ghettos generally perform poorly in school. They have a high proportion of failure, of drop-outs, of reading and other learning disabilities, and of life-adjustment problems. They are especially characterized by deficiencies in reading and language, the two tools on which success in school depends.

Taba found that the schools often exacerbate the learning problems of lower-class children "...through the attitudes of the faculty and choice of curriculum. Deviation in cultural background naturally creates a discontinuity between the cognitive, perceptual, and emotional development of the child and the school curriculum and expectations."[21] This discrepancy is not merely a result of a deficit in academic skills. It is also a discrepancy in orientation to language as a medium of communication. For example, the difference among the linguistic style of habits of students and teachers can be an effective deterrent to communication and, therefore, to learning.

Perhaps computers can intervene and mediate the language barriers between teachers and students, similar to the computer procedures used in item analysis of tests? James Swanson reports a computer program in which teacher-made tests were scored, and test items analyzed. The IBM-1230 Computer used in the experiment scored 368,000 answer sheets in 27 days, did item analysis of each test, and further computer analysis was instituted for determination of new objectives.[22]

In the program described above it would seem that it would be possible to determine which concepts students fail to understand and cause students to continue to fail and teachers to despair. With the aid of the computer, lessons could be developed with words that can be understood by the students--the cultural gap between teachers and students can be reduced.

Sophie Bloom found that the students in a disadvantaged school in Chicago did not clearly understand 20 to 50 percent of the basic words used by their teachers.[23] National surveys of educational achievement directed by James Coleman (Coleman Report) found that there was a cumulative deficit in the academic achievement of minority students. At grade six the average Negro is approximately one-and-one-half years behind the average white. At grade twelve, he is approximately three-and-one-fourth years behind the average white.[24] It seems perfectly reasonable for the Negro student to achieve about 75 percent as much as the average white when he only understands about 50 to 80 percent of what his teacher says.

Cultural Gaps - Differences of Teachers and Students

To determine the words that teachers say that their students do not understand is not, in itself, sufficient to improve the educational achievement of children in depressed areas. Riessman points out that teachers must learn and understand the cultural characteristics of their students.[25] A promising tool to help new teachers to understand the students' environment and for in-service training teachers is simulation.

Bert Y. Kersh describes a classroom simulation experiment for the pre-service education of elementary teachers that could possibly be used as a model for a simulation program that could be particularized for ghetto schools.[26] Kersh's program is concerned with the teacher's ability to detect, diagnose, and resolve such teaching problems as confusion, inattention, distraction, and fatigue on the part of the learner. To carry out the simulated experience he uses films and written materials (cumulative records and community descriptions). There are 60 problem sequences on film with feedback to show probable consequences of teachers' actions. Testing and instruction requires ten hours and simulated experience requires from five to seven hours. Experiences can be practiced repeatedly.

With such a program, some teachers could be helped to understand their students and better anticipate their problems in learning the school's offerings. Furthermore, they could be shown how their own actions are sometimes damaging to the students.

Perhaps, then, the teachers could take to heart John Holt's caveat, "We must try to free our teaching from ambiguity, confusion, and self-contradiction."[27]

Teacher Placement

Study of career patterns of teachers who begin their careers in lower-class schools by Howard Becker shows that teachers tend to transfer to schools which are attended by children of higher social class.[28] Becker gave as reasons for the pattern of teacher transfers their concern with pupil transgressions against deeply-felt moral standards, especially those of "...health and cleanliness, sex and aggression, ambition and work, and the relations of age groups."[29]

The training of teachers through simulated experiences could be extrapolated to new teacher placements. Currently, teacher personnel information in the public schools has not been maximally utilized for placement purposes.

It would be well worth experimentation to identify the most successful teachers in all schools, have them participate in the simulated experiences and record their responses to the questions asked them. If there are discernible patterns, new teachers who fit certain patterns in simulation experiences would receive teaching assignments accordingly. Follow-up studies of the performances of these teachers would attest to the viability of the experimental placement procedure.

Perhaps such a placement program would help to curtail the inordinately large number of teacher transfers from the ghetto schools. Also, the ghetto schools, when they do receive teachers, would receive teachers who have a good chance to succeed in those schools.

Conclusion

Technology has virtually revolutionized business and industry in recent years. Increasingly, technology is being applied to educational problems. Some people anticipate success similar to that enjoyed by business and industry. However, what they seem to ignore is that technology has been used in education for some while without producing any noticeable changes.

Technology has entered education in a big way. But to date, technology has done little other than produced streamlined versions of what has gone on in education for years--old books have been given new covers. The research on pre-service and in-service education of teachers of ghetto children has revealed little as to what kind of training is needed.

It is suggested in the paper that technology can best be applied in preparation of teachers for the ghetto by evaluating current practices in teacher training and through its use in applied and basic research. Technology, through this means, can bring to fruition changes in teacher preparation that are likely to work.

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